

3.0 DESCRIPTION OF WORK TO BE PERFORMED

3.1 Translator Concept.

3.1.1 SDS/FMS Translation Conceptual Model. The Contractor shall develop a model for the translation of logical/physical in an unknown structure in either Oracle or Microsoft Access format to SDS/FMS physical database in the corresponding format. In this regard, the model must consider (1) Oracle to Oracle translations and (2) Microsoft Access to Microsoft Access translation only. The model must comment on the data type constraints associated with translations from Oracle to Microsoft Access and back. The model should specify the precise steps in the translation of both graphic and non-graphic data, considering the requirement for both graphic and non-graphic consistency to maintain the integrity of Geographic Information Systems (GIS) software application.

3.1.2 SDS/FMS Translation Parameters. The Contractor shall develop the necessary data parameter matrix to allow translation of various data types within either Oracle or Microsoft Access. The matrix must consider the various data types, any specific limitations which would prevent accurate translation, and the data types within the SDS/FMS. The Contractor shall define and develop any algorithmic functions required to affect the translation properly as well as the user data required as arguments of those functions. Finally, the Contractor shall develop a data or file format to store this information in a form which may be later read to determine the sequence, constraints, and algorithms required in the translation. The stated data or file format shall be capable of being interpreted in some form to allow users to see and, in plain language format, understand the parameters, sequence, and process of the translation.

3.1.3 ERPIMS Database to SDS/FMS Translation Parameters. Based on information supplied by the Tri-Service Center on the ERPIMS schema and its correlation to the SDS/FMS Release 1.800, the Contractor shall construct the necessary ERPIMS to SDS/FMS Translation Parameters using the concept defined in paragraph 3.1.1. In addition, the Contractor shall build the electronic data file of those parameters using the data or file format defined in paragraph 3.1.2. The Contractor shall define and provide the plain language format of the translation to the COTR as an interim deliverable.

3.2 Translator Software

3.2.1 ERPIMS to SDS/FMS Translation Software. The Contractor shall develop SDS/FMS Translation Software to facilitate the translation of data from one structure, or schema, to another, specifically targeted to accomplishing the translation defined by the parameters in paragraph 3.1.3. The software need not consider all possible combinations of data type translation but should be modifiable to easily accommodate additional constraints and parameters not specifically required in the ERPIMS to SDS/FMS translation. The software shall be a "nonproprietary", Windows 95, 98, and NT (4.0 and 5.0) compatible, Visual Basic application, similar in operation and function to the SDS/FMS application software. The software shall have the capability to read/migrate from both an Oracle and Microsoft Access database, although the final ERPIMS translation will be either Oracle to Oracle, or Microsoft Access to Microsoft Access. A

printout of the programming source code shall be furnished to the COTR with the final deliverable.

3.2.2 The Software shall:

3.2.2.1 Actually perform the migration or translation of data from the users initial ERPIMS compliant database over to the SDS/FMS schema. The software should use 1] the ERPIMS initial data, 2] the translation parameters identified in paragraph 3.1.3, and 3] an available SDS/FMS schema created on the basis of the same Release of the SDS/FMS structure as the correspondence. The software shall create the records, populate the keys, and enforce any graphic linkages which are critical to any Geographic Information System links to design files. Non-graphic information shall be generated offering the capability to migrate the existing Primary Keys to the extent that they do not violate the structure of the SDS/FMS Primary Keys.

3.2.2.2 Document any untranslated or migrated data, permitting the user to review the results of the translation. The objective should be to allow the user to view the final product, allowing for the process to be repeated after reexamining the creation of the correspondence. In this way, the software will provide the capability to iteratively increase the effectiveness of the translation, permitting almost a 'trial and error' approach, particularly in those areas where the correspondence is somewhat vague.

3.2.2.3 Perform and relate the results of failed or incomplete data type casting, or elements where the converted or translation data conveys missing or incomplete information. Incomplete or potentially erroneous casts shall result in the SDS/FMS table USER_FLAG field being set to a Non-Null value reflecting the nature of the casting problem. For example, if the user data is numeric and the corresponding SDS/FMS structures are character strings, the USER_FLAG field should reflect the possibility of the precision of the numeric field being lost as a result of the type casting. Thus, by querying on non-Null USER_FLAG fields, the user may readily see those records where there is a risk of data loss.

The final product will be a populated database (either Oracle or Access (as selected by users data source RDBMS) with the user data in a SDS/FMS structure, with maximum integrity and conformity to the users original data requirements. Actual data which cannot possibly be translated, either due to data type conflicts, or physical cardinality conflicts, will be derived and displayed such that this information can be provided to the SDS/FMS data team for possible modification of the SDS/FMS to meet the individual needs of the user.

3.2.3 **ERPIMS Database to SDS/FMS Translation Demonstration.** The developed software shall be used to translate ERPIMS database tables (target tables and correlation matrix will be provided by COTR) to a SDS/FMS Release 1.90 compliant Oracle (or Access, as source determined) database. A printout of the programming source code and the results of the translation shall be provided COTR along with the final ERPIMS-SDS/FMS Translator Software.

3.3 Electronic Data Entry Form

3.3.1 The Contractor shall develop an electronic data entry form to permit the entry of data (in the field via a laptop computer) concerning an "Environmental Field Sample Collection Location" (tables ehchaspt & cmgencrd) into a SDS/FMS Release 1.80 compliant Microsoft Access database. The electronic data entry form shall be a Windows 98 and NT (4.0 and 5.0) compatible, Visual Basic application, similar in operation and function to the SDS/FMS application software. Simple "Helps", documentation, and Installation Software shall also be provided. A printout of the programming source code shall be furnished to the COTR with the final deliverable.